

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (Currently Amended) An electronic control system having at least first, second and third mutually communicating control units and a memory, wherein ~~during~~ for transmission of a ~~safety-related-transmitted~~ control-related signal from the first control unit to the second control unit:

the first control unit generates the ~~transmitted~~ control-related signal and a second signal complementary thereto on different paths and, sends them to the memory, together with two additional signals, which are indicative of the ~~respectively~~ respective different paths;

the third control unit reads out the control-related and complementary signals ~~transmitted~~ and the additional signals from the memory, and checks them, and i) upon detection of an error in said signals, switches off the first control unit or, ii) if [[the]] said signals are correct, generates different types of test or safety signals and sends them to the memory; and

the first control unit reads out the test or safety signals from the memory and checks them and, i) upon detection of an error in said test or safety

related signals, switches itself off, or ii) if the test or safety signals are correct, ~~feeds~~ emits the ~~transmitted~~ control-related signal and at least ~~[[one]]~~ a prescribed selection of the test or safety signals, for transmission to the second control unit.

Claim 2. (Currently Amended) The control system according to Claim 1, wherein the second control unit tests the ~~transmitted~~ selection of ~~[[the]]~~ test or safety signals and disregards the ~~transmitted~~ control-related signal upon detection of an error in the selection of test or safety signals.

Claim 3. (Currently Amended) The control system according to Claim 1, wherein the second control unit processes or obeys the ~~transmitted~~ control-related signal if the selection of the test or safety signals ~~[[are]]~~ is correct.

Claim 4. (Currently Amended) The control system according to Claim 1, wherein the second control unit returns ~~one of the received transmitted signal~~ and an acknowledgment signal that is correlated to the received control-related signal therewith, to the first control unit, which checks the ~~[[fed]]~~ acknowledgement signal and i) upon detection of an error in the acknowledgement signal, switches the control system to an emergency operating or standby operating mode, and ii) if the acknowledgement signal is correct, causes the ~~[[fed]]~~ control-related signal to be processed further.

Claim 5. (Currently Amended) The control system according to Claim 1, wherein:

if the test or safety signals are correct, the first control unit relays the ~~transmitted~~ control-related signal and the selection of the test or safety signals to the second control unit via a data bus transmitter, which data bus transmitter returns the ~~transmitted~~ control related signal and the selection of the test or safety signals to the second control unit and to the first control unit, respectively; and

the first control unit compares the ~~transmitted~~ control-related and the returned signals and turns itself off in the event of signal deviations.

Claim 6. (Currently Amended) The control system according to claim 1, wherein the ~~transmitted~~ control-related signal and the second signal are complementary to one another in a bitwise fashion.

Claim 7. (New) A method for controlling transmission of control-related signals between first and second control units in a distributed control system that includes said first and second control units, a memory and at least a third control unit, all of which communicate with each other via a communications network, said method comprising:

said first control unit generating a control-related signal and a second signal complementary thereto on different paths and, sending them to the memory, together with two additional signals, which are indicative of the respective different paths;

said third control unit reading out the control-related and complementary signals and the additional signals from the memory, and checking them, and i) upon detection of an error in said signals, switching off the first control unit or, ii) if the signals are correct, generating different types of test or safety signals and sending them to the memory; and

said first control unit reading out the test or safety signals from the memory and checking them and, i) upon detection of an error in said test or safety signals, switching itself off, or ii) if the test or safety signals are correct, emitting the control-related signal and at least a prescribed selection of the test or safety signals, for transmission to the second control unit.

Claim 8. (New) The control system according to Claim 7, wherein the second control unit tests the selection of test or safety signals and disregards the control-related signal upon detection of an error in the selection of test or safety signals.

Claim 9. (New) The control system according to Claim 7, wherein the second control unit processes or obeys the control-related signal if the selection of the test or safety signals is correct.

Claim 10. (New) The control system according to Claim 7, wherein the second control unit returns an acknowledgment signal that is correlated to the received control-related signal, to the first control unit, which checks the acknowledgement signal and i) upon detection of an error in the acknowledgement signal, switches the control system to an emergency operating or standby operating mode, and ii) if the acknowledgement signal is correct, causes the control-related signal to be processed further.

Claim 11. (New) The control system according to Claim 7, wherein:

if the test or safety signals are correct, the first control unit relays the control-related signal and the selection of the test or safety signals to the second control unit via a data bus transmitter, which data bus transmitter returns the control related signal and the selection of the test or safety signals to the second control unit and to the first control unit, respectively; and

the first control unit compares the control-related and the returned signals and turns itself off in the event of signal deviations.

Claim 12. (New) The control system according to claim 7, wherein the control-related signal and the second signal are complementary to one another in a bitwise fashion.